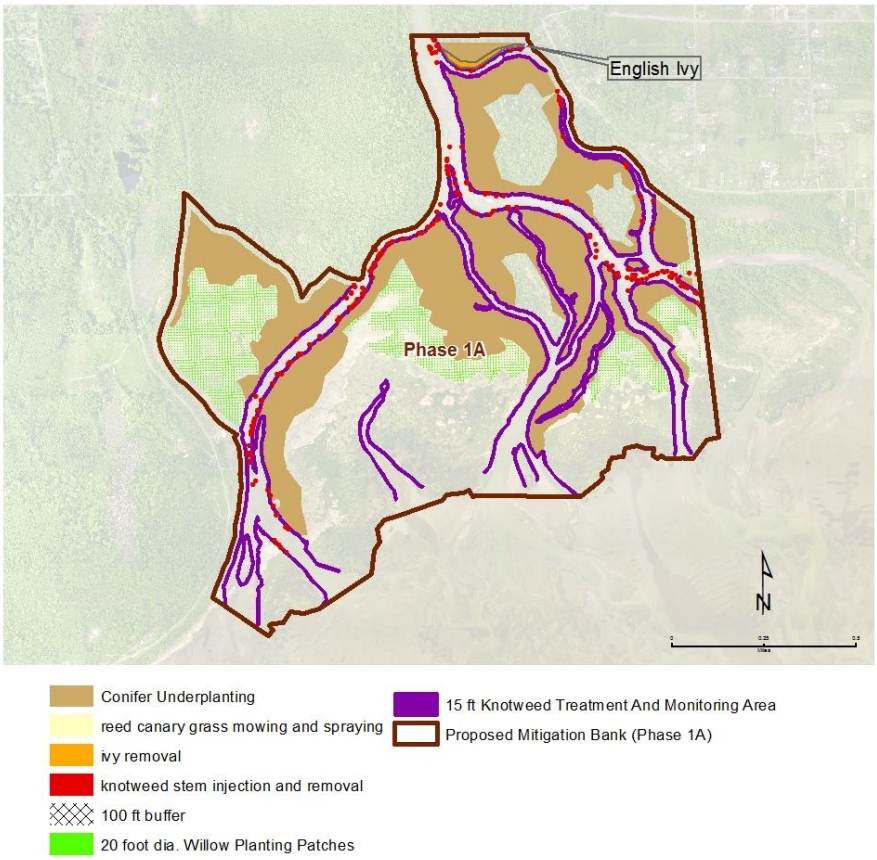
Lummi Nation Wetland and Habitat Mitigation Bank

2014 As-Planted Report
Phase 1A Nooksack Delta Site



Prepared For:

Interagency Review Team – Lummi Nation Wetland and Habitat Mitigation Bank

Prepared By:

Jeremy Freimund, P.H.	Lummi Nation Water Resources Manager
Michael Muscari, PWS	ESA Senior Wetland Ecologist
Frank Lawrence III	Lummi Nation Natural Resources Specialist
Gerry Gabrisch	Lummi Nation GIS Manager
Craig Dolphin	Lummi Nation Database Manager

October 2015

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EXECUTIVE SUMMARY

Summary of 2014 Activities	
Name of Mitigation Bank	Lummi Nation Wetland and Habitat Mitigation Bank
Bank Phase	Phase 1A
U.S. Army Corps of Engineers Reference Number	NWS-2008-1519-SO
Bank Sponsor	Lummi Natural Resources Department
Project Lead	Jeremy R. Freimund, P.H.; Water Resources Manager; jeremyf@lummi-nsn.gov; 360-312-2314
Field Lead	Frank Lawrence III; Natural Resource Specialist; 360-312-2309
Contracted Technical Support	Michael Muscari, PWS; Senior Wetland Ecologist, ESA – Northwest Biological Research Group; 206-789-9658
Treatment Dates: Mowing Reed Canarygrass Areas for 2014 Planting Season	Mow Area 1 (3.63 acres): July 24 – Aug. 8, 2013 Mow Area 2 (0.33 acres): July 24 – Aug. 8, 2013
Treatment Dates: Herbicide Application Area 1 and Area 2	September 12, 2013
Treatment Dates: Willow Planting	Willow Planting Begins: April 17, 2014 Willow Planting Completed: April 25, 2014
Treatment Dates: Brushing and Planting Conifers	Brushing/Conifer Planting Begins: March 21, 2014 Brushing/Conifer Planting Completed: April 25, 2014

INTRODUCTION

The purpose of this as-planted report is to document enhancement activities conducted during 2014 for Phase 1A of the Lummi Nation Wetland and Habitat Mitigation Bank (Bank). Phase 1A is located at the Nooksack Delta Site. This report is part of the documentation required to demonstrate attainment of the performance standards established in the Mitigation Banking Instrument (MBI). The Interagency Review Team (IRT) must review and approve the documentation as a condition of awarding and releasing additional Bank credits. The IRT award of credits will be reflected in a letter issued using IRT letterhead and signed by the IRT Chair (i.e., the U.S. Army Corps of Engineers, District Engineer or his/her designee).

Documentation of the Baseline Vegetation Conditions of the Nooksack Delta Site – Phase 1A was completed in December 2010 and accepted by the IRT. Because of the limited planting window and anticipation that the MBI would be executed during the second quarter of 2011, enhancement activities were initiated during the first quarter of 2011 (Year 0 for the mitigation bank). These enhancement activities continued during 2012 (Year 1), 2013 (Year 2), and 2014 (Year 3). Although the MBI was not executed until July 6, 2012, the IRT stated that the December 2010 Baseline Vegetation Conditions report would be the basis for evaluating attainment of the performance standards identified in the MBI.

PHASE 1A DESIGN PLAN SUMMARY

The enhancement design for the Phase 1A Nooksack Delta Site is focused on (1) removing and managing invasive plant species; and (2) increasing native plant species richness through planting native shrubs and coniferous trees. Following the weed control effort and plantings, the primary work on the site will involve monitoring and maintenance activities.

The Nooksack Delta Site Phase 1A enhancement design is comprised of the following elements in the general sequence that they will occur:

1. Designate and protect the land within the site through a conservation easement;
2. Eradicate or control invasive species;
3. Plant native conifer species within the deciduous forests; and
4. Monitor effectiveness of treatments and underplantings, and repeat as needed to meet performance standards.

The areas designated for the different wetland enhancement measures are shown on Figures 1 and 2. Specific design elements for the enhancement areas are summarized in Table 1 and described below.

Table 1. Enhancement Actions – Nooksack Delta Site Phase 1A

Type of Action	Approximate Area (acres)	Approximate Area (percent)
Wetland Enhancement (knotweed removal: treatment and monitoring area)	0.9	0.2
Wetland Enhancement (weed removal/willow planting: reed canarygrass, yellow flag iris)	101.2	26.6
Wetland Enhancement (weed removal: English ivy)	2.1	0.6
Wetland Enhancement (conifer underplanting)	275.7	72.6
Total Enhancement Area	379.9	100.0

BANK OBJECTIVES AND PERFORMANCE STANDARDS

The Bank's success will be measured by documenting progress toward achieving the objectives and associated performance standards identified in the MBI. The prescribed performance standards are intended to measure the success of the ecological restoration and enhancement efforts at the Bank. Only the Phase 1A performance standards related to the work performed in 2014 (Year 3 of Phase 1A operation) are described below.

Objective 1: Permanently protect aquatic ecosystem functions of the Nooksack Delta Site by instituting the MBI and implementing a conservation easement with permanent funding for site stewardship.

Performance Standard: The conservation easement and financial assurances are included in the MBI. The IRT approved the MBI on July 6, 2012 and the Conservation Easement was approved by all parties and recorded on October 17, 2012. The IRT released 19 credits on October 18, 2012.

Objective 2: Enhance ecological function by removing and managing reed canarygrass and yellow flag iris and replanting with native shrubs.

Performance Standard: Planting of willows in the reed canarygrass and yellow flag iris treatment area (shrub plots) completed according to IRT approved plans. Documentation of performance standard achievement provided in as-planted reports (one for each of the anticipated four planting years) showing completed planting. The as-planted reports, which must be approved by the IRT, will include a species list, plant spacing and density,

a global positioning system (GPS) map showing the center of each planting plot, and final planted acreages each year.

Objective 3: Enhance ecological function by removing and managing English ivy from a 2.1-acre forested area.

Performance Standard 3A: Cutting of English ivy and root pulling with hand tools in treatment area was completed during 2011 and described in the 2011 As-Planted Report and subsequent Year 1 and Year 3 monitoring reports.

Objective 4: Enhance long-term forested wetland ecological function and habitat for federally listed fish species (Chinook, steelhead, and bull trout) by planting conifers beneath deciduous trees in the existing forested areas and along the many stream channels.

Performance Standard 4A: Planting of conifers in the underplanting area completed according to IRT-approved plans. Documentation will include species list, plant spacing and density, GPS map showing the perimeter of the planted area, and final number of treated acres per year.

PHASE 1A WORK COMPLETED IN 2014 (YEAR 3)

The areas where enhancement actions were completed in 2014 are shown on Figure 4 (planted shrub plots) and Figure 6 (conifer underplanting areas) and summarized in Table 2. Work completed in 2014 included planting willow stakes and planting conifer seedlings pursuant to the MBI. Although 2014 represents Year 3 for the Phase 1A site enhancement activities, because the enhancement activities are being conducted in "stages" over several years, enhancement activities conducted during 2014 represent Year 0 for Stage 4 enhancement activities. Some of the actions shown in Figures 1 and 2 as potential areas for enhancement by Year 3 were not completed during 2014 due to supply problems that precluded the planting of conifer seedlings during 2011 and contractor challenges during 2012 (e.g., insufficient manpower, equipment failures). Completion of these actions will be documented in future as-planted reports.

Operational changes that occurred during 2014 included the following:

1. After documented performance challenges during the 2012 planting season, a different contractor (Misanes Inc.) was selected for the 2013 planting season. This second contractor's performance during 2013 was judged to be satisfactory and the same contractor selected during 2013 performed the primary enhancement activities during 2014.
2. After two years of attempting to treat relatively large areas with willow stakes and conifer underplanting during a very limited planting window (due to limitations related to weather and river flow conditions) at remote sites, the targeted treatment areas and number of plantings (willow stakes and conifer plugs) were reduced during 2013. The number of willow stakes was reduced from approximately 40,000 per year to 10,000 per year; the number of conifer plugs reduced from approximately 36,000 per year to 10,000 per year. This reduced level of enhancement activities was maintained during 2014.

Table 2. Phase 1A Enhancement Actions Completed in 2014

Type of Wetland Enhancement Action	Area (acres)
Knotweed removal: treatment and monitoring area	0
Willow planting: reed canarygrass, yellow flag iris	5.9
Weed removal: English ivy	0
Conifer underplanting	24.2
Total Enhancement Area 2014	30.1

Reed Canarygrass/Yellow Flag Iris Treatment and Willow Plantings

Work Completed in 2014

Work completed during 2014 included planting an additional 5.9 acres of reed canarygrass treatment and willow plantings. Willows were planted within 152 new plots each measuring approximately 20 feet in diameter near the southeastern extent of the Phase 1A area and just south of the 2013 willow enhancement area (see Figure 4).

Similar to previous years, the locations for the plots to be planted with willow stakes in 2014 were established in a grid pattern with 40-foot on center spacing using a Geographic Information System (GIS). The latitude and longitude of each of the plots was then loaded from the GIS into a mapping grade, hand-held global positioning system (GPS) unit with a horizontal accuracy of ± 2 feet (Trimble GeoXT). The GPS unit was used to locate the plot centers in the field (see Figure 3). Each plot was designated with a unique identifier for data tracking purposes and a wood lathe with a unique identifier written on it was used to mark the plot center. Survey flagging was attached to the wood lathe to help field locate the plot centers.

If the plots centers located using the GIS were found in the field to be unsuitable for planting due to site conditions (e.g., dense large woody debris, deep water, cattails), either the plot center was offset to an adjacent suitable site and its new location recorded using the GPS or the location was by-passed and the next plot center located. The approach taken was determined based on field conditions and the degree that the plot location was judged to be not suitable for planting.

As noted in previous As-Planted reports, the utility of mowing the essentially dormant reed canarygrass within the plots prior to planting the willow stakes was questioned after the 2011 planting effort. Field visits during the summer of 2011 suggested qualitatively that the mowing effort had little or no effect on suppressing the reed canarygrass growth. Consequently, two alternative planting methods were identified for the 2012 planting

season. One approach was to plant the willow stakes within the 20-foot diameter plot boundaries without mowing first. The second approach was to treat an area with herbicide during the summer of 2011 and then plant the 20-foot diameter plots within the herbicide treated area during the spring of 2012. The combination of these two planting methods was also used during 2014.

As described in the 2013 As-Planted Report, a 3.96 acre area of the 2014 reedcanary grass planting area was mowed using hand-held brush cutters over the July 24 through August 8, 2013 period. Of this 3.96 acre area, 0.33 acres was in the 100-foot buffer of the mitigation bank but was treated anyways as it was part of a continuous patch of reed canarygrass (see Figure 3). The acreage that was mowed was determined by walking the boundary with the Trimble GeoXT GPS unit. The 3.96 acre mowed area was allowed to start regrowing and then was treated by a licensed pesticide applicator on September 12, 2013 by spraying with a herbicide (Aquamaster). The pesticide application record is provided in Appendix A of this As-Planted Report.

Re-planting willow stakes within the field located and marked (with wood lathe) 20-foot diameter plots began on April 17, 2014. The willow planting was delayed so that the contractor could initially focus on brushing and planting the conifer seedlings, which began on March 21, 2014. Earlier access to the site was limited due to high river flows or unsuitable weather conditions. As depicted in Figure 4 and Figure 5, live willow stakes were planted in 20-foot diameter plots. Three species of willow stakes were planted: Pacific (*Salix lasiandra*), Sitka (*S. sitchensis*), and Hooker's (*S. hookeriana*). Stake spacing averaged 2 to 3 feet on center (approximately 57 stems per plot or 1,425 stems per acre). The planting of the willow plots was completed on April 25, 2014.

As noted previously, due to the challenges of planting over 40,000 willow stakes during 2011 and 2012, the increasing remoteness of the treated areas, and the lower success rate that resulted during 2012 (at least partially attributable to the late planting period, which extended to May 15, 2012) only10,000 willow stakes were purchased for each of the 2013 and 2014 planting seasons. Following the planting season, the GIS was used to draw a polygon around the planted plot locations and the treated area determined. Using this approach, the overall new treatment area for 2014 was determined to be 5.9 acres. For comparison/validation purposes, at a planting density of approximately 1,425 stems per acre, the 10,000 willow stakes used for the 152 planted plots would be enough to treat 7 acres. Similarly, at an average planting density of 25 plots per acre, the 152 plots equates to a treatment area of 6.1 acres. The 5.9 acres of treated area is slightly less than the area computed based on stem counts and planting density.

Willow stakes were purchased from the Washington Conservation District plant materials center located in Skagit County (invoices and pick lists are provided in Appendix B). Figure 5 includes photographs of the 2014 planting area taken during both planting in April 2014 and during baseline monitoring during September 2014.

Willow Plot Sampling

Performance standards for the willow planting plots include: documentation of planting in Year 0 (this report), shrub aerial cover starting with a minimum of 10% in Year 1, and an increase in the diameter of the plots beginning in Year 7. When approved by the IRT,

this As-Planted report satisfies the Year 0 performance standards specified in Table C.2 of the MBI.

In order to provide a basis of comparison for the future diameters of the plots, the diameter of randomly selected plots was measured as described in the Mitigation Banking Instrument for Year 0. The GIS was used to randomly sample/select 12 of the 152 plots (a little over 5% of total) for shrub cover and plot diameter measurements. The sample plot locations from 2014 selected for sampling and monitoring is shown in Figure 4. The plot locations will also serve as permanent photo point; four photographs will be taken at the plots during future monitoring.

Three measurements of the plot diameter were made at the sample plots and averaged. Baseline diameter measurements were taken near the end of the growing season (September 15, 2014) using a fiberglass tape stretched through the center of the plot (marked with wood lathe) and were made from the outermost portion of the willow stems. Shrub cover was estimated to average 23.9% with a standard error (SE) of 5.4 for the 12 plots monitored at the end of the Year 0 (2014) growing season. It is noted that this relatively high average shrub cover is attributed to both the herbicide application during 2013 that reduced the reed canarygrass competition and also the relatively sparser density of reed canarygrass in this portion of the mitigation bank.

The mean diameter of the 12 willow plots sampled in September 2014 was 19.3 feet. The Year 0 diameter for the 12 monitoring plots and the target diameters for the monitoring plots are shown in Table 3. The 12 sample plots are designated as permanent plots. The mean diameter for the individual plots will be the baseline used to compare with the mean diameter measured in Years 7 and 10. Performance standards for Year 7 include a 10% minimum increase in plot diameter for at least 25% of the sample plots. Additional details, including error measurements are in Appendix C.

Table 3. Willow Plots Planted in 2014 (5% of total shrub plots)

Station Name	Mean Diameter in Year 0 (ft)	Target Diameter (+10%) by Year 7 (ft)
20140003	21.31	23.44
20140011	20.89	22.98
20140085	20.36	22.4
20140106	20.19	22.21
20140113	21.06	23.17
20140133	12.69	13.96
20140138	20.03	22.03
20140139	20.92	23.01
20140154	18.75	20.62
20140155	16.11	17.72

Station Name	Mean Diameter in Year 0 (ft)	Target Diameter (+10%) by Year 7 (ft)
20140159	21.47	23.62
20140172	17.82[1]	19.6
20140003	21.31	23.44
Mean	19.3	21.23

[1] Alternate Baseline Estimate

Conifer Underplanting

Work Completed in 2014

Conifers were planted within deciduous forest areas shown on Figure 6 at a contracted average spacing of 13 feet on center and an average density of 260 seedlings per acre. The conifer planting areas were prepared by cutting down competing shrub vegetation using hand-operated, gas powered steel bladed brush cutters. Plant material invoices (see Appendix B) reflect that 10,000 bare root conifer seedlings (7,500 Western Red Cedar [75%] and 2,500 Sitka Spruce [25%]) were purchased. Planting and billing records from the contractor indicate that the site preparation for planting the conifers occurred over the March 21 through April 4, 2014 period and conifer seedlings were planted during the April 7 through April 16, 2014 period. Similar to the willow planting area, following the planting season the perimeter of the planted area was located in the field using the GPS and the GIS was used to draw a polygon around the planted area. Using this approach, the overall conifer underplanting treatment area for 2014 was determined to be 24.2 acres. For comparison/validation purposes, at a planting density of approximately 260 seedlings per acre, the 10,000 seedlings would be enough to treat 38.5 acres. Based on the number of seedlings and the acreage that was planted, the estimated planting density was 413 stems per acre. Representative photographs of the conifer plantings are included in Figures 7 and 8. Figure 9 shows the combined area of conifer underplantings over the 2012, 2013, and 2014 planting seasons. Figure 10 shows the combined enhancements that have been conducted in the Phase 1A site over the 2011 through 2014 period.

Conifer Sampling Transects

Monitoring was conducted along the 6 transects shown in Figure 6 on October 6, 2014 to provide a baseline (Year 0) assessment of tree density, height, and overall health. All of the transects were monitored on October 6, 2014. The start and endpoints of each transect were located using GPS and marked in the field with wood lath. Photographs were taken at each end of each transect and also of at least one representative tree along each transect. Live conifer saplings within a 6-foot-wide "belt" centered on each transect were counted to sample the tree population. The mean density of conifers at the end of the Year 0 growing season was measured to be 131.4 per acre (SE 45), based on 6 transects. The average tree height was 2.35 feet (SE 0.08) based on measurements of 45

individual trees. Additional conifer planting is required in the 2014 enhancement area to achieve the performance standards.

Knotweed Control

The existing knotweed occurrences along the riverbanks were located with GPS in late summer 2012 to provide an updated existing conditions map. Knotweed control efforts have not begun on the Bank site. Alternative knotweed control methods (e.g., spraying with salt water) are being evaluated and are expected to be implemented in 2016.

FIGURES

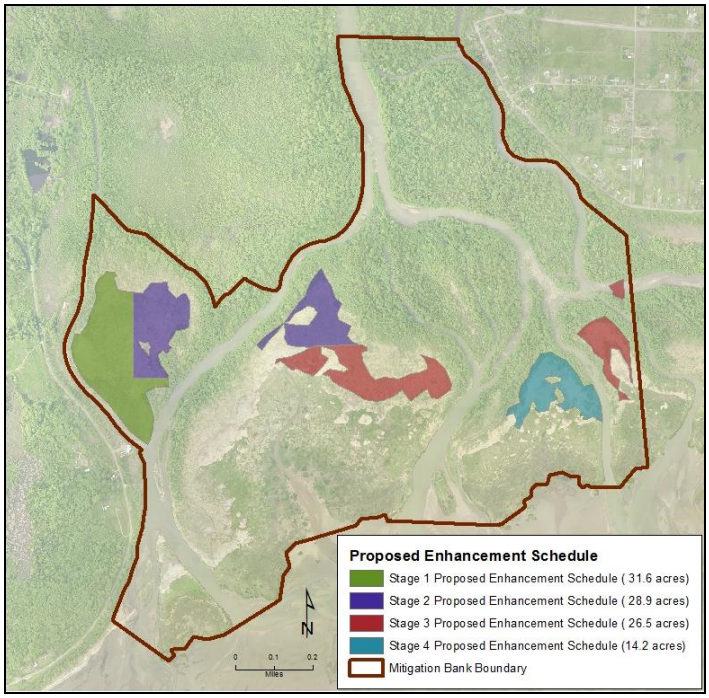


Figure 1. Proposed Reed Canarygrass Treatment Areas (Phase 1A)

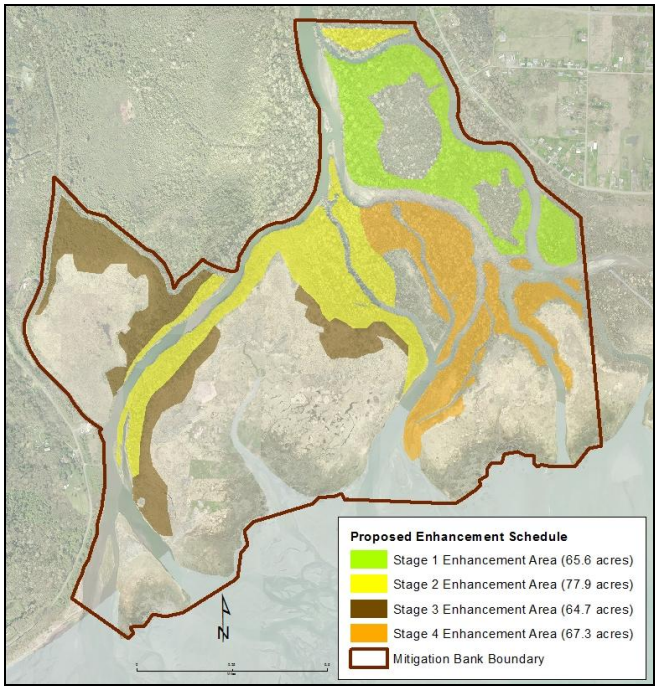


Figure 2. Proposed Conifer Underplanting Areas (Phase 1A)

Figures 1 and 2 are presented for reference to the proposed 4-year enhancement schedule. Full sized images and further details are provided in the MBI.

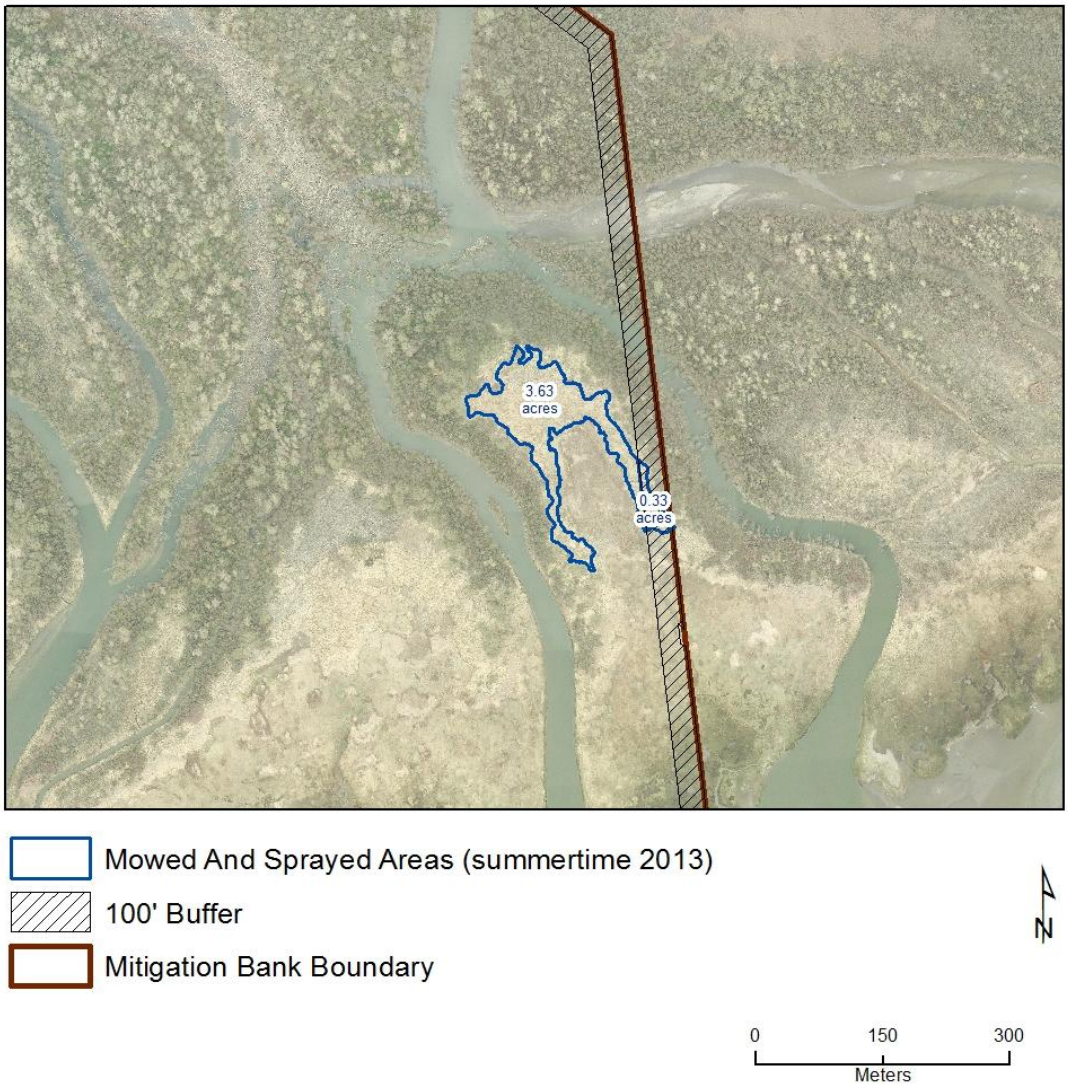


Figure 3. Mowed and Herbicide Treated Area During 2013 for 2014 Planting Season

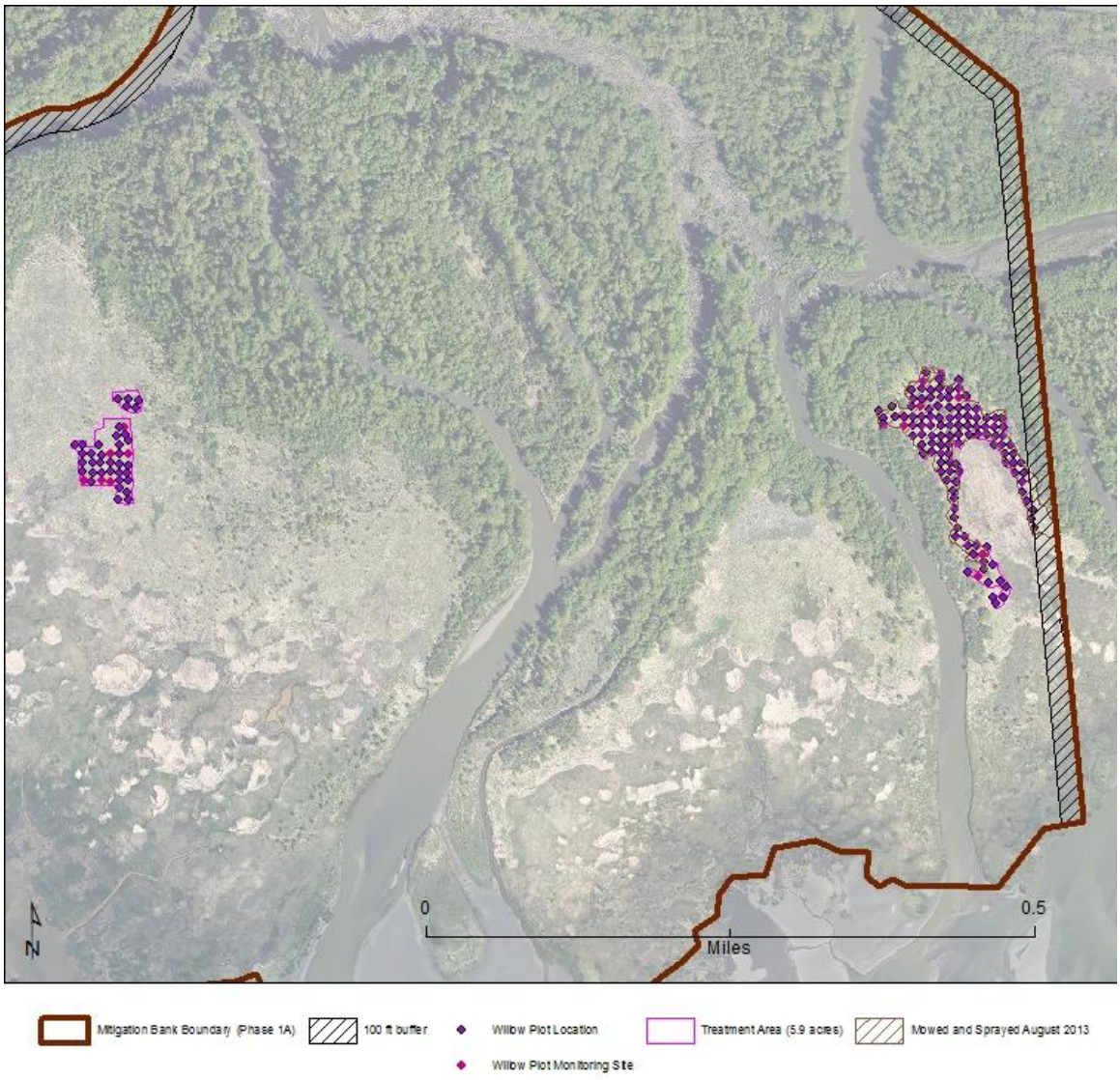
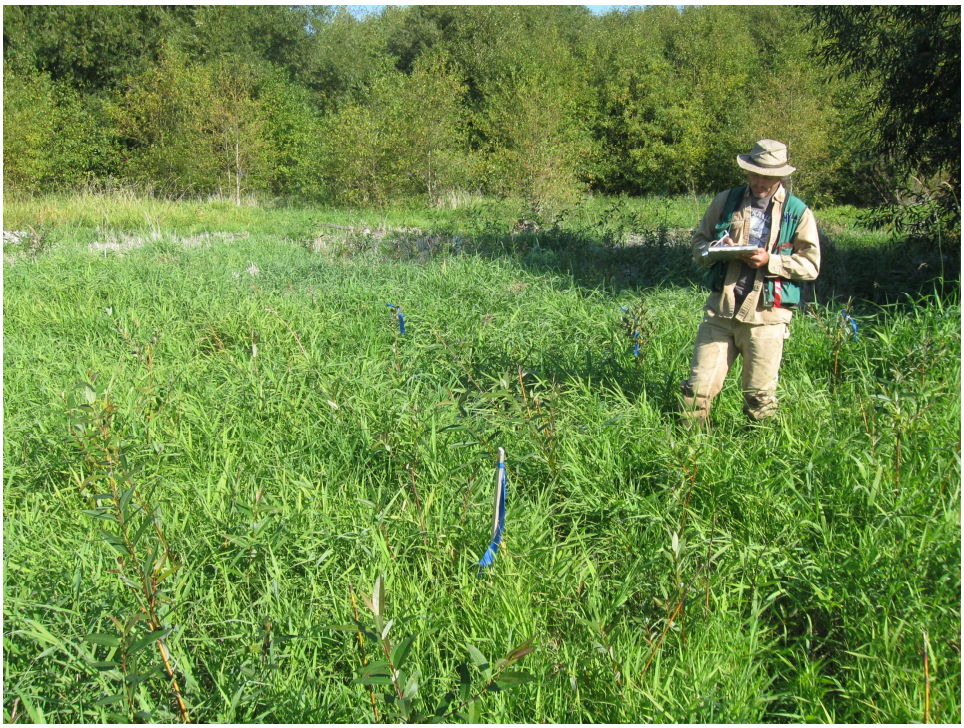


Figure 4. 2014 Willow Planting Plots

Photograph taken in June 2014 showing a typical 2014 willow planting plot in herbicide treated area.



Photograph taken in September 2014 facing showing a typical 2014 willow planting plot in herbicide treated area.

Figure 5. Photographs of 2014 Willow Planting Plots

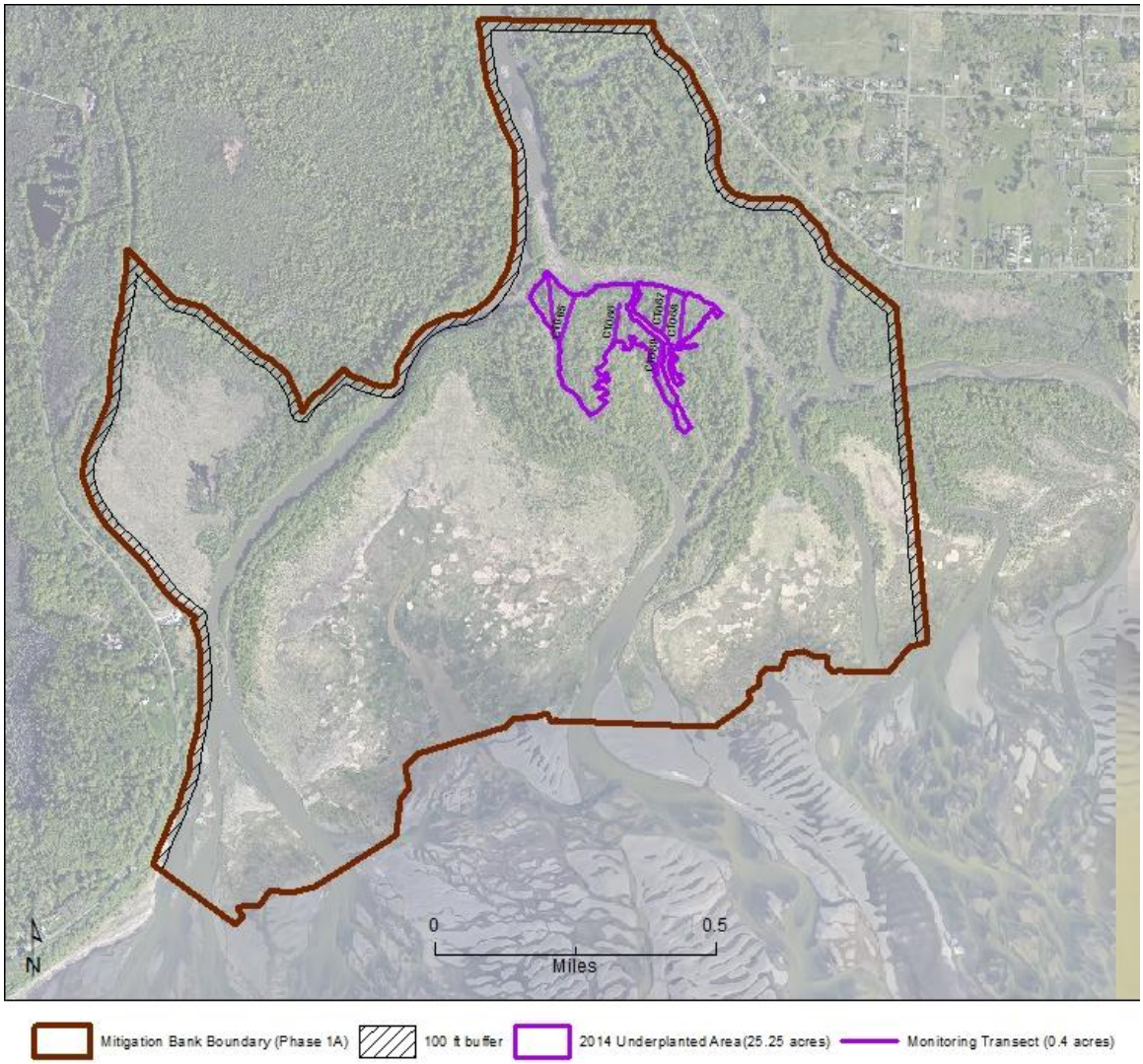


Figure 6. Conifer Underplanting Areas Completed in 2014

Brushing activities in preparation for conifer planting in April 2014.

Conifer planting in April 2014.

Figure 7. Photographs of 2014 Site Preparation and Conifer Plantings

Red cedar planted April 2014 within conifer underplanting area. Approximately 0.50 foot of new growth can be seen in photograph taken October 2014.

Year 0 monitoring activities in the 2014 conifer planting area.

Figure 8. Photographs of Conifer Monitoring Activities in October 2014

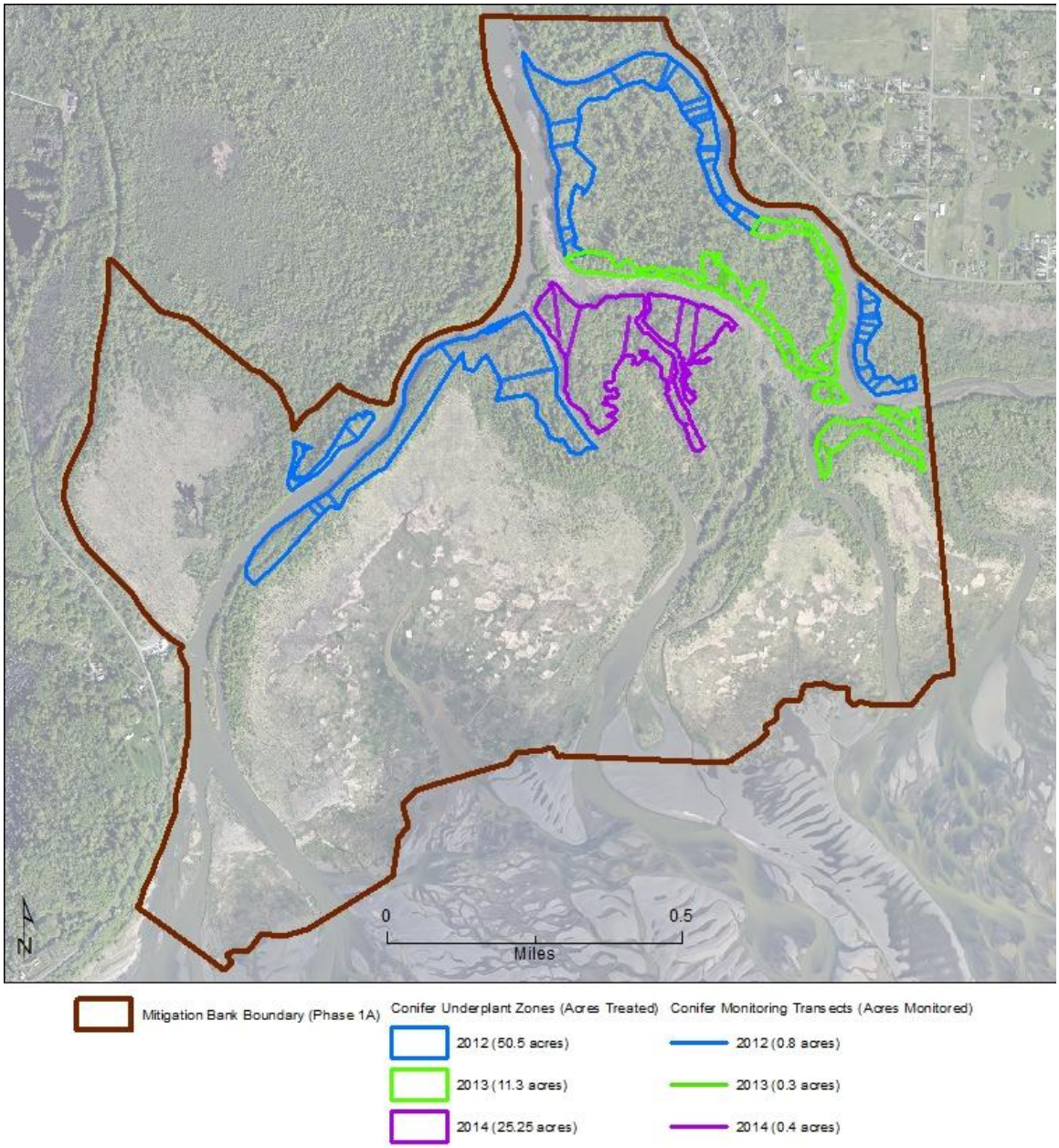


Figure 9. Conifer Underplanting Areas Completed 2012 through 2014

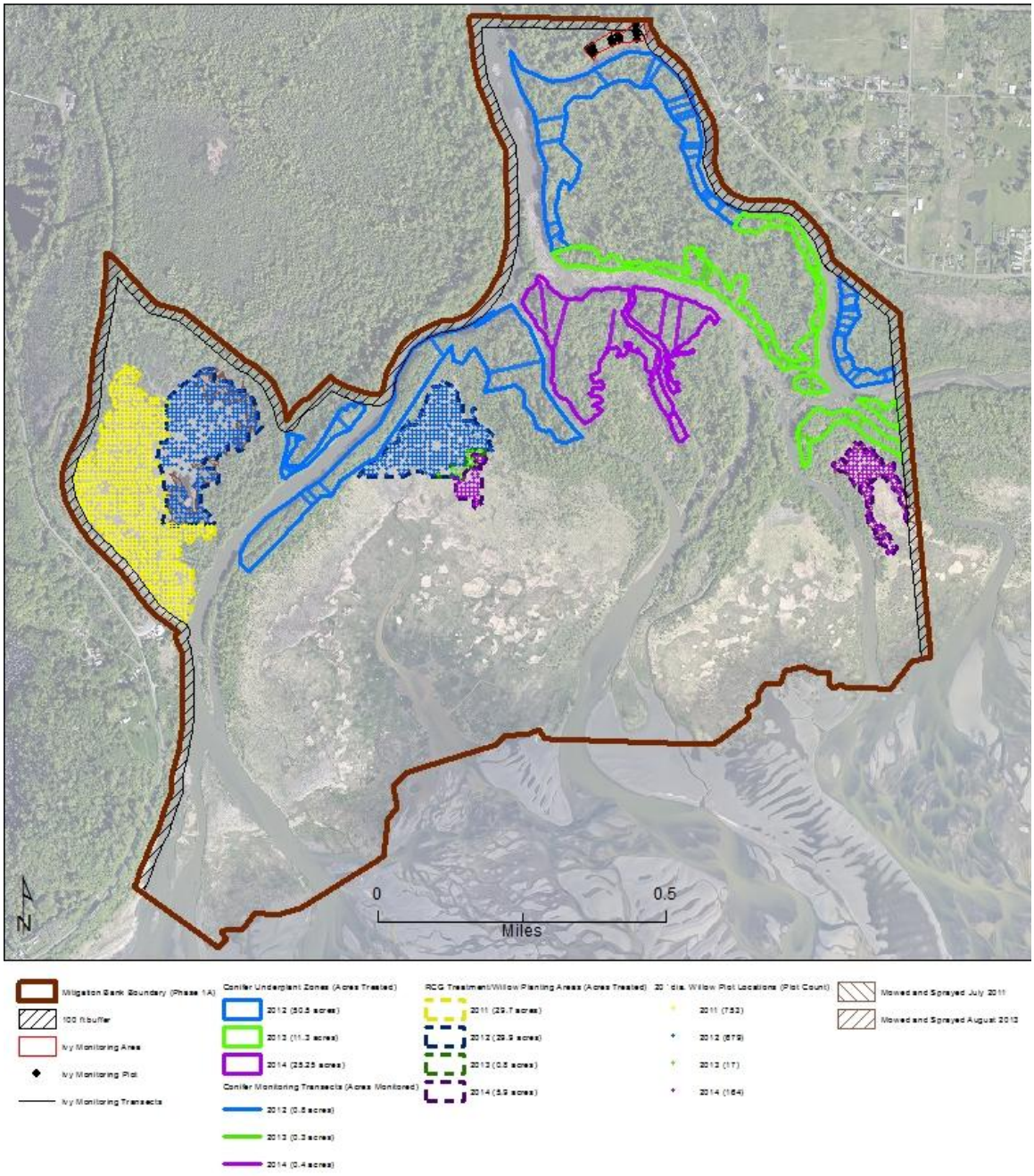


Figure 10. Enhancement Areas/Activities Completed 2011 through 2014

APPENDIX A: PESTICIDE APPLICATION RECORD

Squalicum Mountain
Ecological Restoration, Inc.

Brad Newell
2925 St. Clair Street
Bellingham, WA 98226
cell: (360) 961-2512
fax: (360) 650-0825
web: www.squalicumeco.com

Herbicide Application Report

Prepared on September 15, 2013 for:

Lummi Natural Resources

Frank Lawrence and Jeremy Freimund

2665 Kwina Road

Bellingham, WA 98226

Squalicum Mountain
Ecological Restoration, Inc.

Brad Newell
2925 St. Clair Street
Bellingham, WA 98226
cell: (360) 961-2512
fax: (360) 650-0825
web: www.squalicumeco.com

Squalicum Mountain Ecological Restoration was contracted by the Lummi Indian Business Council to provide labor and materials to spray herbicides on approximately 4 acres of reed canary grass at a remote site located southeast of Marietta. Frank Lawrence and 4 Squalicum Mountain personnel applied a 1.5% aquatic glyphosate solution at a 2.5 qts./acre rate using back pack units on September 12, 2013. An aquatic glyphosate, Aquamaster, the surfactant Agri-Dex, and blue indicator dye were used.

Frank Lawrence and Brad Newell set up the spraying operation on September 11, when all of the spraying equipment and chemicals were staged within the restoration area. A skiff was used to transport materials from Marietta to the site. A gas powered water pump and 400 feet of hoses were used to move water from the Nooksack River to the work area, where the chemicals were mixed in 30 gallon garbage cans. The individual 5-gallon backpacks were filled using buckets.

The site conditions were ideal for the herbicide spraying. The canary grass had been mowed in August and regrowth was about 8-16 inches high. The wind was light, and dry conditions prevailed for several days following application. Herbicide effects should become evident within a week. There will be some untreated regrowth appearing later from under the thick layers of dry mowed grass, but these areas were minimal and the overall coverage was very good.

Brad Newell

Squalicum Mountain Ecological Restoration

WSDA

PESTICIDE APPLICATION RECORD

~~(Knotweed)~~ REED CANARY GRASS

Washington State Department of Agriculture
Plant Protection Division
PO Box 42560
Olympia, WA 98504-2560
(360) 902-1853

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. Chapter 17.21 RCW)

1. YEAR OF PESTICIDE APPLICATION	MONTH OF APPLICATION	DAY OF APPLICATION	START TIME OF APPLICATION	STOP TIME OF APPLICATION
2013	SEPT.	12	8 am	3 pm

2. NAME OF PERSON FOR WHOM PESTICIDE WAS APPLIED	FIRM NAME (IF APPLICABLE)		
JEREMY FREIMUND, FRANK LAWRENCE	Lummi NATURAL RESOURCES		
STREET ADDRESS	CITY	STATE	ZIP
2665 KWINA RD	BELLINGHAM	WA	98226

3. LICENSED APPLICATORS NAME (IF DIFFERENT FROM #2 ABOVE)	LICENSE NUMBER
BRAD G. NEWELL	61034
FIRM NAME (IF APPLICABLE)	TELEPHONE NUMBER
SQUALICUM MTN. ECOLOGICAL RESTORATION	360.961.2512

STREET ADDRESS	CITY	STATE	ZIP
2925 ST. CLAIR ST.	BELLINGHAM	WA	98226

4. PERSON "A" WHO APPLIED PESTICIDE (IF DIFFERENT FROM #3 ABOVE)	PERSON "A" LICENSE NUMBER	PERSON "B" WHO APPLIED PESTICIDE	PERSON "B" LICENSE NUMBER
PERSON "C" WHO APPLIED PESTICIDE	PERSON "C" LICENSE NUMBER	PERSON "D" WHO APPLIED PESTICIDE	PERSON "D" LICENSE NUMBER

5. APPLICATION CROP OR SITE	6. TOTAL AREA TREATED (ACRE, SQ. FT., ETC.)
NOOKSACK DELTA RESTORATION SITE - REED CANARY GRASS	4 ACRES

7. Please list all information for each pesticide in the tank mix (including surfactants) or pesticide injected:

(a) Product Name	(b) EPA Reg. No.	(c) Total Amount of Herbicide Applied in Area Treated (in gallons)	(d) Herbicide Applied/Acre (or other measure)	(e) Concentration Applied
AQUA MASTER	524-343	2.5 gal	2.5 QTS/A	1.5%
AGRI-DEX	5905-50094-AA	1.13 gal		0.5%
HI-LITE DYE (BLUE)		.56 gal		

8. Address or **geographical coordinates** of application: LUMMI RESERVATION 48° 46' 43.77" N, 122° 34' 33.57" W
NOTE: If the application is made to one or more acres of agricultural land, the field location must be shown on the map on page two of this form.

9. Wind direction and estimated velocity during the application: VAR. 0 – 7 MPH
(The permit requires foliar treatments to occur when the wind is less than 10 miles per hour)

10. Temperature during the application: 65 – 74° F

11. Apparatus license plate number (if applicable): _____

12. ☒ Ground ☐ Injection

13. Plant Specific Information (check one in each row):

Plant density: ☒ Seedlings/Regrowth from shoots ☐ Scattered stand ☐ Dense stand

Height of plant: ☒ Less than 1 foot ☐ 1 to 5 feet ☐ 5 feet or taller

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Squalicum Mountain
Ecological Restoration, Inc.

Brad Newell
2925 St. Clair Street
Bellingham, WA 98226
cell: (360) 961-2512
fax: (360) 650-0825
web: www.squalicumeco.com

Invoice No. 2105

Lummi Indian Business Council

Natural Resources Dept.

Jeremy Freimund
2665 Kwina Road
Bellingham, WA 98227

Contract # 166-13, PO # 139159

OK to Pay Jeremy Freimund 9/18/2013

Herbicide Application
September 15, 2013

Labor and materials were provided to apply 250 gallons of a 1.5% aquatic glyphosate solution to 4 acres of reed canary grass. The work was completed on September 12, 2013.

Herbicide Application	4 acres @ 700.00/acre	$2,800.00

APPENDIX B: INVOICES

312046

LUMMI INDIAN BUSINESS COUNCIL

MATERIAL / WORK ORDER

(THIS IS NOT A PURCHASE ORDER)

Vendor / Contractor	Vendor #	Date
WACP Plant Makers Center		7-31-13
Requesting Department	Account #	
LNR/Water Resources/Fred Lawrence	10.150.9201.527	

Quantity	Description	Price	Amount
5,000	Hooker Willow 36" cutting	0.66 ea	$3,300.00
2,500	Pacific Willow 36" cutting	0.66 ea	$1,650.00
2,500	Sitka Willow 36" cutting	0.66 ea	$1,650.00
7,500	WRC 201-05 #1, 12"+	0.61 ea	$4,575.00
2,500	Sitka Spruce BC, #1, 12"+	0.66 ea	$1,650.00
	For Lummi Nation WHHB		$12,825.00
	This is a $11,000 deposit		
	For Sales Order #14-050.		
	Remaining balance will be		
	$1,825.00.		
		Total Estimate →	$11,000.00

Requested By	Approved By
Fred Lawrence	Jeremy Freimond

PURCHASE ORDER

LUMMI INDIAN BUSINESS COUNCIL
2665 KWINA ROAD
BELLINGHAM, WA 98226
PHONE (360) 312-2187
TAX EXEMPT NUMBER WAC 458-20-192

PURCHASE ORDER NUMBER: 138449
P.O. DATE: 8/01/2013
CANCEL DATE: 10/01/2013

VENDOR: 17989

SHIP TO:

WACD Plant Materials Center
16564 Bradley Road
Bow, WA 98232

Lummi Indian Business Council
2665 Kwina Road
Bellingham, WA 98226

QUANITITY	DESCRIPTION	UNIT PRICE	EXTENSION
1.00	SUPPLIES FOR NATURAL RES./ WATER RESOURCES * SEE ATTACHED ORDER LIST *	11,000.00	11,000.00

Distribution Account	Distribution Amount
10 150 9201 52700	11000.00

REQUISITION	REQUESTED BY/DEPT.		
312046	JEREMY.F/NATURAL RES. WATER	**TOTAL:**	**11,000.00**

APPROVED BY Andrea Point

PMC Sales
16564 Bradley Road
Bow, WA 98232

Voice: 360-757-1094
Email: pmcsales@clearwire.net
Website: www.waodpmc.org

SALES ORDER

Sales Order Number: 14-050
Sales Order Date: Jul 31, 2013
Page: 1

This is not a bill.
An Invoice will be sent.

To:	Ship To:
Lummi Natural Resources - Lawrence, F Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226	Lummi Natural Resources - Lawrence, F Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226

Customer ID	PO Number	Sales Rep Name
L1240.3	Mitigation Bank	Julie Whitacre
Customer Contact	**Customer Phone Number**	**Payment Terms**
Frank Lawrence	360-312-2309	Net 30 Days

Quantity	Description	Unit Price	Amount
5,000	Willow, Hooker (Salix hookeriana) WW, 36" cutting	0.66	3,300.00
2,500	Willow, Pacific (Salix lucida ssp. lasiandra) WW, 36" cutting	0.66	1,650.00
2,500	Willow, Sitka (Salix sitchensis) WW, 36" cutting	0.66	1,650.00
7,500	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25) (S)	0.61	4,575.00
2,500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)	0.66	1,650.00

Deposit of $11,000.00 on 7-31-13, balance is $1,825.00.

Subtotal	12,825.00
Sales Tax	
Freight	0.00
TOTAL ORDER AMOUNT	**12,825.00**

WACD Plant Materials Center
16564 Bradley Road
Bow, WA 98232
USA

Voice: 360-757-1094
Fax: 360-757-3923

INVOICE

Invoice Number: 14-050-Deposit
Invoice Date: Aug 1, 2013
Page: 1

Bill To:	Ship to:
Lummi Natural Resources - Lawrence, F Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226	Lummi Natural Resources - Frank L Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226

Customer ID	Customer PO	Payment Terms	
L1240.3	PO #138449	Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
WhitacreJ	Best Way		8/31/13

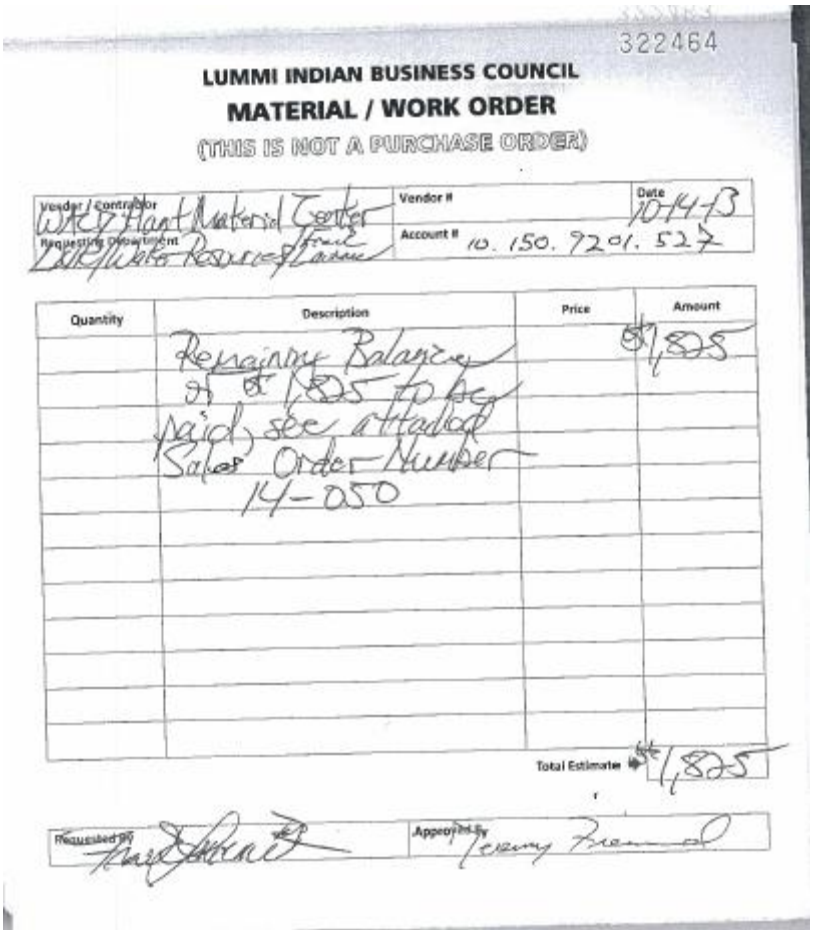
Quantity	Description	Unit Price	Amount
1	Deposit	11,000.00	11,000.00
	Balance owing after deposit is paid is $1,825.00 (total Sales Order $12,825)		

OK to Pay 8/23/13

Subtotal	11,000.00
Sales Tax	
Total Invoice Amount	11,000.00
Payment/Credit Applied	
TOTAL	**11,000.00**

Check/Credit Memo No:

We will add finance charges on invoices more than 90 days overdue



322464

LUMMI INDIAN BUSINESS COUNCIL

MATERIAL / WORK ORDER

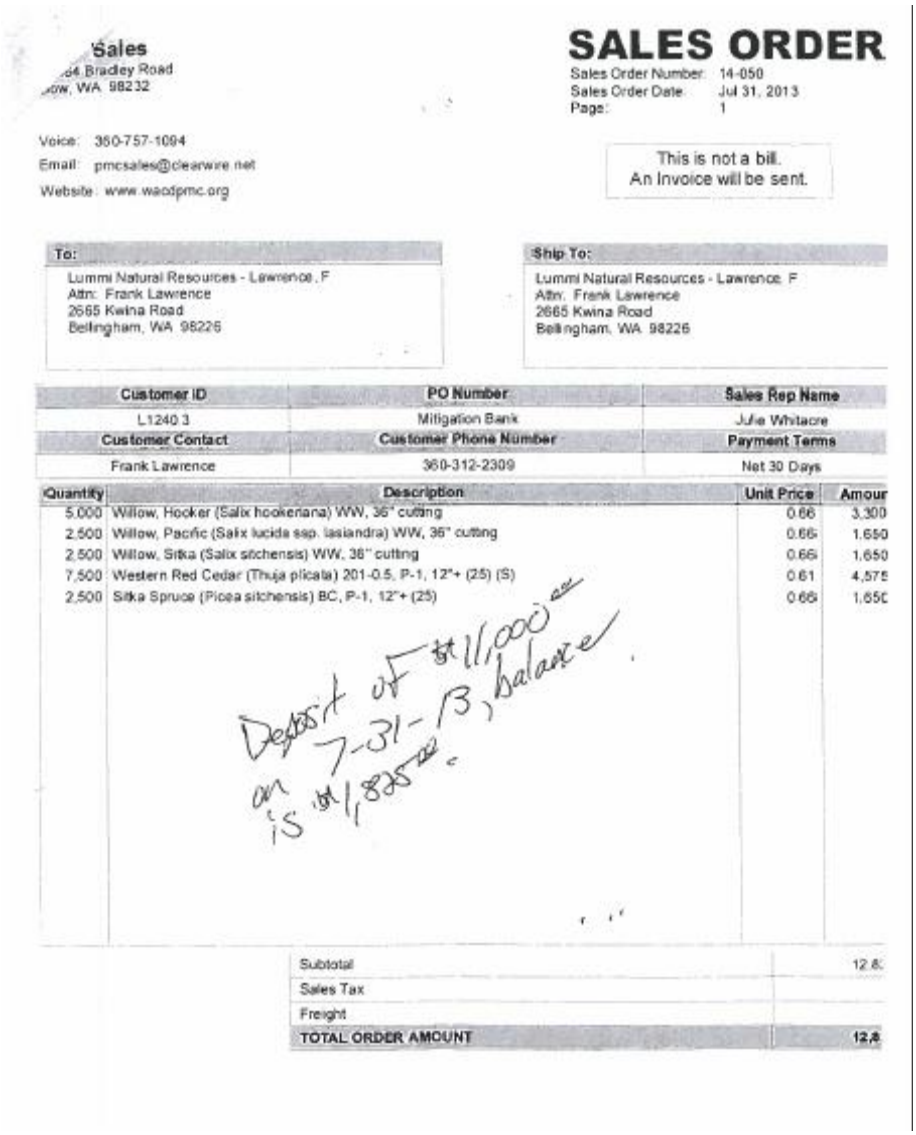
(THIS IS NOT A PURCHASE ORDER)

Vendor / Contractor	Vendor #	Date
W.C.D. Hart Material Center		10-14-13
Requesting Department	Account #	
Lummi Natural Resources/Farm	10.150.7201.527	

Quantity	Description	Price	Amount
	Remaining Balance of $1,825 to be paid, see attached Sales Order Number 14-050		$1,825
		Total Estimate	$1,825

Requested by: [signature]

Approved by: [signature]



Sales
...04 Bradley Road
...ow, WA 98232

Voice: 360-757-1094
Email: pmcsales@clearwire.net
Website: www.wadpmc.org

SALES ORDER

Sales Order Number: 14-050
Sales Order Date: Jul 31, 2013
Page: 1

This is not a bill.
An Invoice will be sent.

To:	Ship To:
Lummi Natural Resources - Lawrence, F Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226	Lummi Natural Resources - Lawrence, F Attn: Frank Lawrence 2665 Kwina Road Bellingham, WA 98226

Customer ID	PO Number	Sales Rep Name
L1240 3	Mitigation Bank	Julie Whitacre
Customer Contact	**Customer Phone Number**	**Payment Terms**
Frank Lawrence	360-312-2309	Net 30 Days

Quantity	Description	Unit Price	Amour
5,000	Willow, Hooker (Salix hookeriana) WW, 36" cutting	0.66	3,300
2,500	Willow, Pacific (Salix lucida ssp. lasiandra) WW, 36" cutting	0.66	1,650
2,500	Willow, Sitka (Salix sitchensis) WW, 36" cutting	0.66	1,650
7,500	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25) (S)	0.61	4,575
2,500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)	0.66	1,650

Deposit of $11,000 on 7-31-13, balance is $1,835.

Subtotal	12,8
Sales Tax	
Freight	
TOTAL ORDER AMOUNT	**12,8**

PURCHASE ORDER

PURCHASE ORDER NUMBER: 139875

LUMMI INDIAN BUSINESS COUNCIL
2665 KWINA ROAD
BELLINGHAM, WA 98226
PHONE (360) 312-2187
TAX EXEMPT NUMBER WAC 458-20-192

P.O. DATE: 10/15/2013

CANCEL DATE: 12/15/2013

VENDOR: **17989**

SHIP TO:

WACD Plant Materials Center
16564 Bradley Road
Bow, WA 98232

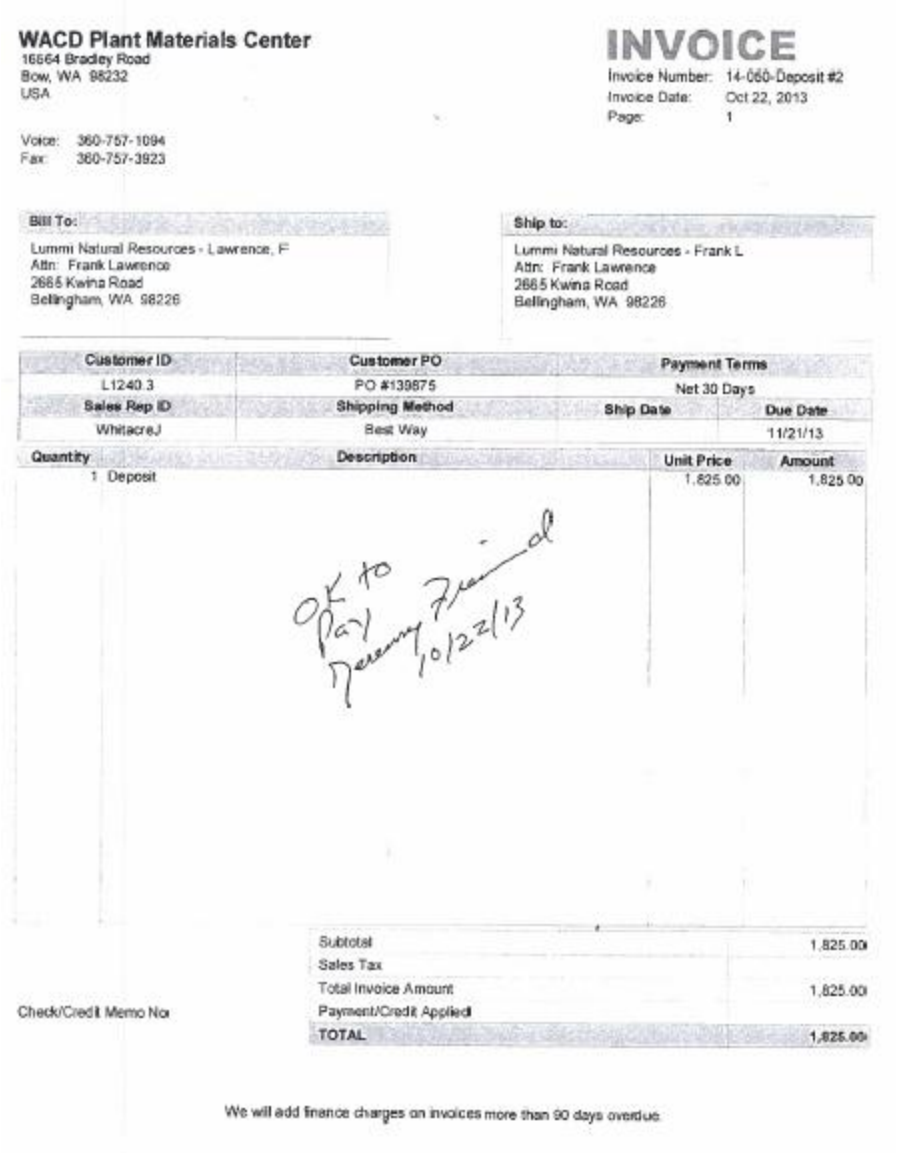
Lummi Indian Business Council
2665 Kwina Road
Bellingham, WA 98226

QUANITITY	DESCRIPTION	UNIT PRICE	EXTENSION
1.00	REMAINING BALANCE OF 1825 TO BE PAID SALES ORDER # 14-050	1,825.00	1,825.00

Distribution Account	Distribution Amount
10 150 9201 52700	1825.00

REQUISITION	REQUESTED BY/DEPT.		
322464	FRANK/NATURAL RESOURCES	**TOTAL:**	**1,825.00**

APPROVED BY



WACD Plant Materials Center
16664 Bradley Road
Bow, WA 98232
USA

Voice: 360-757-1094
Fax: 360-757-3923

INVOICE

Invoice Number: 14-060-Deposit #2
Invoice Date: Oct 22, 2013
Page: 1

Bill To:
Lummi Natural Resources - Lawrence, F
Attn: Frank Lawrence
2665 Kwina Road
Bellingham, WA 98226

Ship to:
Lummi Natural Resources - Frank L
Attn: Frank Lawrence
2665 Kwina Road
Bellingham, WA 98226

Customer ID	Customer PO	Payment Terms	
L1240.3	PO #139875	Net 30 Days	
Sales Rep ID	**Shipping Method**	**Ship Date**	**Due Date**
WhitacreJ	Best Way		11/21/13

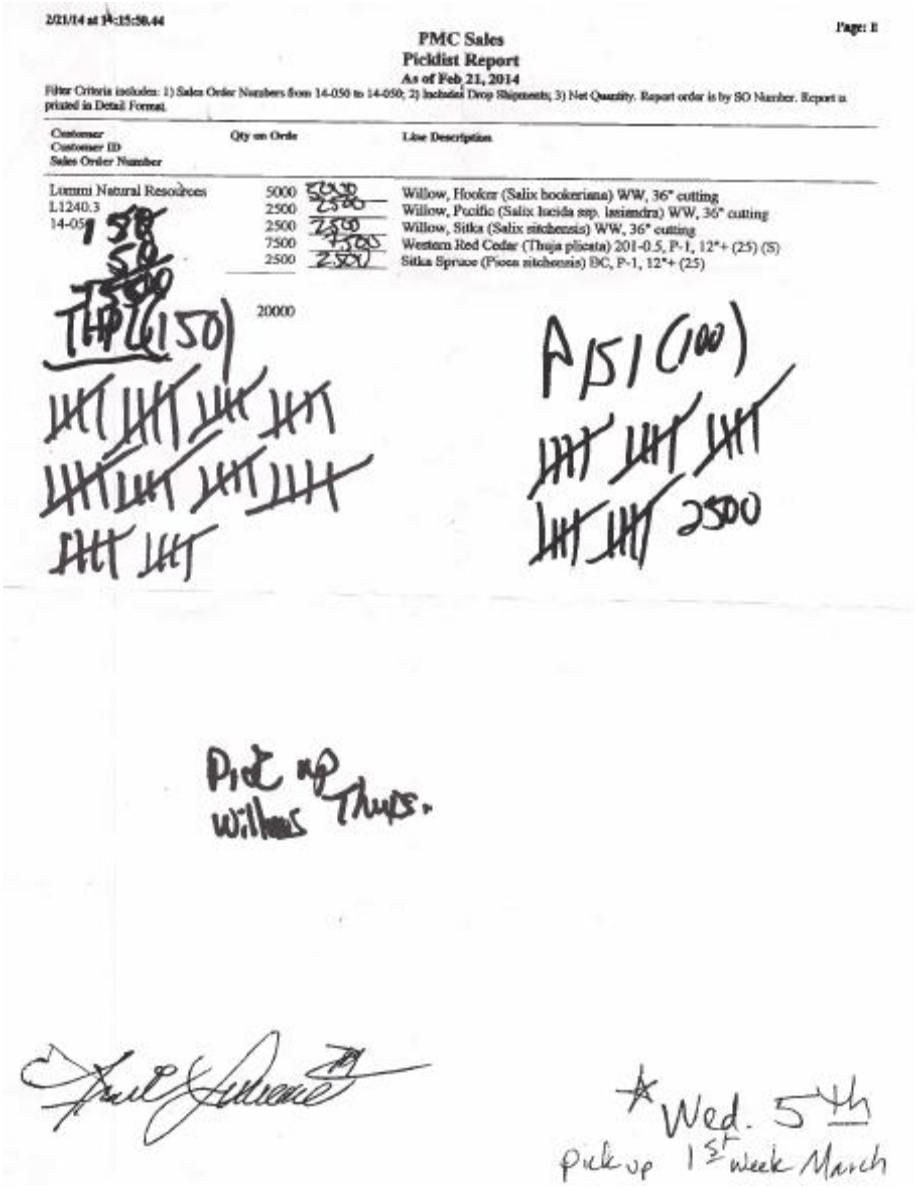
Quantity	Description	Unit Price	Amount
1	Deposit	1,825.00	1,825.00

OK to Pay - Approved
Jeremy Freed
10/22/13

Subtotal	1,825.00
Sales Tax	
Total Invoice Amount	1,825.00
Payment/Credit Applied	
TOTAL	**1,825.00**

Check/Credit Memo No:

We will add finance charges on invoices more than 90 days overdue.



2/21/14 at 14:15:58.44 Page: 1

PMC Sales
Picklist Report
As of Feb 21, 2014

Filter Criteria includes: 1) Sales Order Numbers from 14-050 to 14-050; 2) Includes Drop Shipments; 3) Net Quantity. Report order is by SO Number. Report is printed in Detail Format.

Customer / Customer ID / Sales Order Number	Qty on Orde		Line Description
Lummi Natural Resources	5000	5000	Willow, Hooker (Salix hookeriana) WW, 36" cutting
L1240.3	2500	2500	Willow, Pacific (Salix lucida ssp. lasiandra) WW, 36" cutting
14-050	2500	2500	Willow, Sitka (Salix sitchensis) WW, 36" cutting
	7500	7500	Western Red Cedar (Thuja plicata) 201-0.5, P-1, 12"+ (25) (S)
	2500	2500	Sitka Spruce (Picea sitchensis) BC, P-1, 12"+ (25)
	20000		

THP (150)

APSI (100)

2500

Pick up willows Thurs.

* Wed. 5th
Pick up 1st week March

3/5/14 at 12:11:36.70 Page: 1

PMC Sales
Picklist Report
As of Mar 5, 2014

Filter Criteria includes: 1) Sales Order Numbers from 14-050 to 14-050; 2) Includes Drop Shipments; 3) Net Quantity. Report order is by SO Number. Report is printed in Detail Format.

Customer Customer ID Sales Order Number	Qty on Orde		Line Description
Lummi Natural Resources	5000	5000	Willow, Hooker (Salix bookeriana) WW, 36" cutting
L1240.3	2500	2500	Willow, Pacific (Salix lucida ssp. lasiandra) WW, 36" cutting
14-050	2500	2500	Willow, Sitka (Salix sitchensis) WW, 36" cutting
	10000		

Hooker Pacific
23 22

APPENDIX C: YEAR 0 SHRUB PLOT DIAMETERS

Shrub Planting Plots Sampled at Nooksack Delta Phase 1A Site for 2014 Planting Stage (5% of Total Shrub Patches)

Willow Patch Diameter Monitoring Statistic Details (ft)

Subarea Name: 2014 Reed Can Grass Control Zone

Station Name	Measured Baseline:	Alternative Baseline:	Target Diameter:	StageName:	Mean:	Count:	StDev:	StdErr:
20140003	21.31		23.44	Baseline	21.31	3	1.06	0.35
20140011	20.89		22.98	Baseline	20.89	3	0.92	0.31
20140085	20.36		22.40	Baseline	20.36	3	0.25	0.08
20140106	20.19		22.21	Baseline	20.19	3	0.79	0.26
20140113	21.06		23.17	Baseline	21.06	3	1.57	0.52
20140133	12.69		13.96	Baseline	12.69	3	6.03	2.01
20140138	20.03		22.03	Baseline	20.03	3	1.04	0.35
20140139	20.92		23.01	Baseline	20.92	3	0.76	0.25
20140154	18.75		20.62	Baseline	18.75	3	1.64	0.55
20140155	16.11		17.72	Baseline	16.11	3	1.34	0.45
20140159	21.47		23.62	Baseline	21.47	3	0.81	0.27
20140172	0	17.82	19.60	Baseline	0	3	0	0